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Patents Department
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EXAMINER	
HUANG, WEN WU	
ART UNIT	PAPER NUMBER
2682	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,437	PATEL ET AL.	
	Examiner	Art Unit	
	Wen Huang	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-39 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-39 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 11 June 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 10/18/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities:

In the first line of claim 10, the word "selection" is considered as a typographical error because it lacks antecedent basis. The word "switch" is considered instead of "selection".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5, 8, 9, 11-19, 22, 23, 30-34, 36-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Leifer (US. 6,459,171 B1).

Regarding claim 1, Leifer teaches a power source, comprising:

first and second batteries (see fig. 2, components 203 and 205); and

a power management module (see fig. 2, component 217) configured to operate each of the first and second batteries in a pulse current discharge mode (see fig. 3 and col. 2, lines 48-53) while supplying continuous current to a load (see col. 5, lines 21-24).

Regarding claim 2, Leifer also teaches the power source of claim 1 wherein the power management module comprises a switch control module (see fig. 2, component 217), and a switch (see fig. 2, components 219 and 221) configured to intermittently couple the first and second batteries to the load (see fig. 3) under control of the switch control module (see fig. 2, components 225 and 227).

Regarding claim 3, Leifer further teaches the power source of claim 2 wherein the switch comprises a first switch (see fig. 2, component 219) configured to intermittently couple the first battery to the load (see fig. 3) under control of the switch control module (see fig. 2, component 225), and a second switch (see fig. 2, component 221) configured to intermittently couple the second battery to the load (see fig. 3) under control of the switch control module (see fig. 2, component 227).

Regarding claim 4, Leifer also teaches the power source of claim 3 wherein the first and second switches each comprises a field effect transistor (see fig. 4, components 419 and 421, col. 7, lines 61-63).

Regarding claim 5, Leifer further teaches the power source of claim 3 wherein the power management module is further configured to measure (see fig. 2, component 215) the current supplied to the load (see col. 2, lines 53-59), the switch control module

being further configured to control the switch as a function of the measured current (see col. 4, lines 26-29).

Regarding claim 8, Leifer also teaches the power source of claim 3 wherein the switch control module is further configured to control the switch such that the first battery is coupled to the load before removing the second battery from the load (see col. 5, lines 21-24; the word "successively" implies each switch is turned on following each other without interruption).

Regarding claim 9, Leifer further teaches the power source of claim 1 wherein the switch control module is further configured to control the switch as a function of voltage measured (see col. 6, lines 52-58) at each of the first and second batteries (see fig. 2, components 231 and 233).

Regarding claim 11, Leifer teaches a power source, comprising:

first and second batteries (see fig. 2, components 203 and 205); and

means for (see fig. 2, component 217) operating each of the first and second batteries in a pulse current discharge mode (see fig. 3 and col. 2, lines 48-53) while supplying continuous current to a load (see col. 5, lines 21-24).

Regarding claim 12, Leifer also teaches the power source of claim 11 wherein the means for operating each of the first and second batteries in a pulse discharge mode comprises

a first switch (see fig. 2, component 219) configured to intermittently couple to the first battery to the load (see fig. 3),

a second switch (see fig. 2, component 221) configured to intermittently couple the second battery to the load (see fig. 3), and

means for controlling the first and second switches (see fig. 2, components 225 and 227).

Regarding claim 13, Leifer further teaches the power source of claim 12 wherein the means for operating each of the first and second batteries in a pulse discharge mode further comprises

means for measuring the current supplied to the load (see fig. 2, component 215 and col. 2, lines 53-59),

the means for controlling the first and second switches being responsive to the measured current (see col. 4, lines 26-29).

Regarding claim 14, Leifer also teaches the power source of claim 12 wherein the means for controlling the first and second switches is configured to couple the first battery to the load before removing the second battery from the load (see col. 5, lines

21-24; the word "successively" implies each switch is turned on following each other without interruption).

Regarding claim 15, Leifer further teaches the power source of claim 12 wherein the means for controlling the first and second switches is responsive to voltage measured (see col. 6, lines 52-58) at each of the first and second batteries (see fig. 2, components 231 and 233).

Regarding claim 16, Leifer teaches a power source, comprising:

first and second batteries (see fig. 2, components 203 and 205);

a switch coupled to the first and second batteries (see fig. 2, components 219 and 221); and

a switch control module (see fig. 2, component 217) configured to operate the switch such that each of the first and second batteries are intermittently (see fig. 3) coupled to a load (see fig. 2, components 225 and 227).

Regarding claim 17, Leifer also teaches the power source of claim 16 wherein the switch comprises

a first switch (see fig. 2, component 219) coupled to the first battery and a second switch (see fig. 2, component 221) coupled to the second battery,

the switch control module further being configured to control the first and second switches to intermittently (see fig. 3) couple the first and second batteries to the load (see fig. 2, components 225 and 227).

Regarding claim 18, Leifer also teaches the power source of claim 17 wherein the first and second switches each comprises a field effect transistor (see fig. 4, components 419 and 421, col. 7, lines 61-63).

Regarding claim 19, Leifer also teaches the power source of claim 16 further comprising means for measuring (see fig. 2, component 215) the current supplied to the load (see col. 2, lines 53-59), and wherein the switch control module is further configured to control the switch a function of the measured current (see col. 4, lines 26-29).

Regarding claim 22, Leifer also teaches the power source of claim 16 wherein the switch control module is further configured to control the switch such that the first battery is coupled to the load before the second battery is removed from the load (see col. 5, lines 21-24; the word "successively" implies each switch is turned on following each other without interruption).

Regarding claim 23, Leifer further teaches the power source of claim 16 wherein the switch control module is further configured to control the switch as a function of

voltage measured (see col. 6, lines 52-58) at each of the first and second batteries (see fig. 2, components 231 and 233).

Regarding claim 30, Leifer teaches a wireless communications device, comprising:

a processor (see fig. 2, component 201) configured to support wireless communications (see col. 3, lines 43-51);

first and second batteries (see fig. 2, components 203 and 205); and

a power management module (see fig. 2, component 217) configured to operate each of the first and second batteries in a pulse current discharge mode (see fig. 3 and col. 2, lines 48-53) while supplying continuous current to the processor (see col. 5, lines 21-24).

Regarding claim 31, Leifer also teaches the wireless communications device of claim 30 wherein the power management module comprises a switch control module (see fig. 2, component 217), and a switch (see fig. 2, components 219 and 221) configured to intermittently (see fig. 3) couple the first and second batteries to the processor under control of the switch control module (see fig. 2, components 225 and 227).

Regarding claim 32, Leifer also teaches the wireless communications device of claim 31 wherein the switch comprises a first switch (see fig. 2, component 219)

configured to intermittently couple the first battery to the processor (see fig. 3) under control of the switch control module (see fig. 2, component 225), and a second switch (see fig. 2, component 221) configured to intermittently couple the second battery to the processor (see fig. 3) under control of the switch control module (see fig. 2, component 227).

Regarding claim 33, Leifer also teaches the wireless communications device of claim 32 wherein the first and second switches each comprises a field effect transistor (see fig. 4, components 419 and 421, col. 7, lines 61-63).

Regarding claim 34, Leifer also teaches the wireless communications device of claim 32 wherein the processor is further configured to operate in an idle state (see col. 5, lines 14-20), the switch control module further being configured to control the switch as a function of the processor state (see col. 5, lines 20-34).

Regarding claim 36, Leifer also teaches the wireless communications device of claim 34 wherein the switch control module (see fig. 2, component 217) is further configured to control the switch (see fig. 2, components 221 and 219) such that each of the first and second batteries are intermittently (see fig. 3) coupled to the processor (see fig. 2, component 201) if the processor is in the traffic state (see col. 6, lines 32-39).

Regarding claim 37, Leifer also teaches the wireless communications device of claim 34 wherein the power control module is further configured to determine the processor state as a function of the current (see fig. 2, component 215) supplied to the processor (see col. 4, lines 26-29).

Regarding claim 38, Leifer also teaches the wireless communications device of claim 30 wherein the switch control module is further configured to control the switch as a function of voltage measured (see col. 6, lines 52-58) at each of the first and second batteries (see fig. 2, components 231 and 233).

3. Claims 25, 26, 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Odaohhara (US 2001/0054878 A1).

Regarding claim 25, Odaohhara teaches a method of supplying current to a load from first (see fig. 3, component 112A) and second (see fig. 3, component 112B) batteries, comprising:

connecting the first and second batteries to the load (see fig. 4, step 210 and "Set mode 3"; paragraph [0108] and paragraph [0103], Table 1);

disconnecting the first battery from the load while maintaining the connection between the second battery and the load (see fig. 4, step 210 and "Set mode 4"; paragraph [0103], Table 1);

reconnecting the first battery to the load while maintaining the connection between the second battery and the load (see fig. 4, step 218 and "Set mode 3"; paragraph [0108] and paragraph [0103], Table 1); and

disconnecting the second battery from the load while maintaining the connection between the first battery and the load (see fig. 4, step 218 and "Set mode 2"; paragraph [0103], Table 1).

Regarding claim 26, Odaohhara also teaches the method of claim 25 wherein the connection between the first battery and the load is made with a first field effect transistor and the connection between the second battery and the load is made with a second field effect transistor (see paragraph [0090]).

Regarding claim 28, Odaohhara also teaches the method of claim 25 further comprising determining that a voltage measured at the second battery exceeds a voltage measured at the first battery, the disconnection of the first battery from the load being in response to such determination (see fig. 4, step 208 and paragraph [0114]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10, 24, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lefier as applied to claim 9, 23, 38 above, and further in view of Choo (US. 6,452,362 B1).

Regarding claim 10, Leifer teaches the power source of claim 9.

However, Leifer fails to teach that wherein the switch module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load.

But, Choo teaches a power source wherein the switch module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load (see Choo, fig. 3, steps 120, 125, 135, 130, 140).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Choo in order to maximize the usage time of the batteries (see Choo, col. 3, lines 50-51).

Regarding claim 24, Leifer teaches the power source of claim 23.

However, Leifer fails to teach that wherein the switch control module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load.

But, Choo teaches a power source wherein the switch module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load (see Choo, fig. 3, steps 120, 125, 135, 130, 140).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Choo in order to maximize the usage time of the batteries (see Choo, col. 3, lines 50-51).

Regarding claim 39, Leifer teaches the wireless communications device of claim 38.

However, Leifer fails to teach that wherein the selection module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load.

But, Choo teaches a wireless communication device (see Choo, col. 1, line 24) wherein the selection module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load (see Choo, col. 3, lines 50-51).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Choo in order to maximize the usage time of the batteries (see Choo, col. 3, lines 50-51).

5. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Odaohhara as applied to claim 28 above, and further in view of Choo.

Regarding claim 29, Odaohhara teaches the method of claim 28.

However, Odaohhara fails to teach that further comprising determining that the voltage measured at the second battery is substantially equal to the voltage measured at the first battery after the first battery is disconnected from the load, the reconnection of the first battery to the load being in response to such determination that the measured voltages at the first and second batteries are substantially equal.

But Choo teach a method comprising determining that the voltage measured at the second battery is substantially equal to the voltage measured at the first battery after the first battery is disconnected from the load, the reconnection of the first battery to the load being in response to such determination that the measured voltages at the first and second batteries are substantially equal (see Choo, fig. 3 and Step 145, col. 9, lines 27-35).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Odaohhara with the teaching of Choo in order to maximize the usage time of the batteries (see Choo, col. 3, lines 50-51).

6. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leifer as applied to claim 34 above, and further in view of Moles et al (US. 6,522,873).

Regarding claim 35, Leifer teaches the wireless communications device of claim 34.

However, Leifer fails to teach that wherein the switch control module is further configured to control the switch such that the first and second batteries are continuously coupled to the processor if the processor is in the idle state.

But, Moles et al teach a wireless communication device (see Moles et al, col. 1, lines 26-30) wherein a switch control module (see Moles et al, fig. 2, component 230) is further configured to control a switch such that the first (see Moles et al, fig. 2, component 250) and second (see Moles et al, fig. 2, component 260) batteries are continuously (see Moles et al, fig. 3, component 330, "non-slotted mode") coupled to the processor if the processor is in the idle state (see Moles et al, col. 1, lines 55-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Moles in order to improve wireless communication devices that are less likely to losing a communication (see Moles et al, col. 2, lines 19-21).

7. Claims 6 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leifer as applied to claims 5 and 19 above, and further in view of Moles et al and Odaohhara (US. 6,664,764).

Regarding claim 6, Leifer teaches the power source of claim 5.

However, Leifer fails to teach that wherein the switch control module is further configured to control the switch such that the first and second batteries are continuously coupled to the load if the measured current is below a threshold.

But, Moles et al teach a power source (see Moles et al, fig. 2, components 230, 250, 260, 270) wherein a switch control module (see Moles et al, fig. 2, component 230) is further configured to control a switch such that the first (see Moles et al, fig. 2, component 250) and second (see Moles et al, fig. 2, component 260) batteries are continuously (see Moles et al, fig. 3, component 330, "non-slotted mode") coupled to a load (see Moles et al, col. 1, lines 55-65; Moles et al teach that if it is in a idle state).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Moles in order to improve wireless communication devices that are less likely to losing a communication (see Moles et al, col. 2, lines 19-21).

However, the combination of Leifer and Moles et al still fail to teach that if the measured current is below a threshold.

But, Odaohhara teaches that if the measured current is below a threshold (see Odaohhara, col. 4, lines 6-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer and Moles et al with the teaching of Odaohhara in order to prolong the battery lifetime.

Regarding claim 20, Leifer teaches the power source of claim 19.

However, Leifer fails to teach that wherein the switch control module is further configured to control the switch such that the first and second batteries are continuously coupled to the load if the measured current is below a threshold.

But, Moles et al teach a power source (see Moles et al, fig. 2, components 230, 250, 260, 270) wherein a switch control module (see Moles et al, fig. 2, component 230) is further configured to control a switch such that the first (see Moles et al, fig. 2, component 250) and second (see Moles et al, fig. 2, component 260) batteries are continuously (see Moles et al, fig. 3, component 330, "non-slotted mode") coupled to a load (see Moles et al, col. 1, lines 55-65; Moles et al teach that if it is in a idle state).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Moles in order to improve wireless communication devices that are less likely to losing a communication (see Moles et al, col. 2, lines 19-21).

However, the combination of Leifer and Moles et al still fail to teach that if the measured current is below a threshold.

But, Odaohhara teaches that if the measured current is below a threshold (see Odaohhara, col. 4, lines 6-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer and Moles et al with the teaching of Odaohhara in order to prolong the battery lifetime.

8. Claims 7 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leifer as applied to claims 5 and 19 above, and further in view of Ha et al (US. 6,134,457).

Regarding claim 7, Leifer teaches the power source of claim 5 wherein the switch control module (see fig. 2, component 217) is further configured to control the switch (see fig. 2, components 221 and 219) such that each of the first and second batteries are intermittently (see fig. 3) coupled to the load (see fig. 2, component 201; Leifer teaches that if the load is in a traffic state).

However, Leifer fails to teach that if the measured current reaches a threshold for a period of time.

But, Ha et al teach a traffic state if the measured current reaches a threshold for a period of time (see Ha et al, col. 2, lines 41-44).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Ha et al in order to differentiate current consumption characteristic based on operational modes (see Ha et al, col. 1, lines 42-50).

Regarding claim 21, Leifer teaches the power source of claim 19 wherein the switch control module (see fig. 2, component 217) is further configured to control the switch (see fig. 2, components 221 and 219) such that each of the first and second

batteries are intermittently (see fig. 3) coupled to the load (see fig. 2, component 201; Leifer teaches that if the load is in a traffic state).

However, Leifer fails to teach that if the measured current crosses a threshold for a period of time.

But, Ha et al teach a traffic state if the measured current crosses a threshold for a period of time (see Ha et al, col. 2, lines 41-44).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leifer with the teaching of Ha et al in order to differentiate current consumption characteristic based on operational modes (see Ha et al, col. 1, lines 42-50).

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Odaohhara (US 2001/0054878 A1) as applied to claim 25 above, and further in view of Ha et al.

Regarding claim 27, Odaohhara teaches the method of claim 25.

However, Odaohhara fails to teach that further comprising determining that the current supplied to the load crosses a threshold for a period of time, the disconnection of the first battery from the load being in response to such determination.

But, Ha et al teach a method comprising determining that the current supplied to the load crosses a threshold for a period of time (see Ha et al, col. 2, lines 51-44), the

disconnection of the first battery from the load being in response to such determination (see Ha et al, col. 2, lines 49-50; "replace the batter with a new one").

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Odaohhara with the teaching of Ha et al in order to allow users of mobile devices to operate the mobile devices and avoid low battery or dead battery situations.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Odaohara (US. 5,784,626) teaches selectively coupling two batteries to a device.

Kuiri (US. 5,877,564) teaches a wireless phone with two batteries.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen Huang whose telephone number is (571) 272-7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

wwh

WH
4/27/05

LEE NGUYEN
PRIMARY EXAMINER